
Astragalus tuyehensis (Fabaceae), a New Species from Iran

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ABSTRACT. A new species from Iran, *Astragalus tuyehensis*, belonging to the bifurcate-haired subgenus *Cercidothrix*, is described and illustrated. Its relationships to *A. durandianus* and its distinguishing characters, such as inflated calyx and non-swollen fruit, are discussed.

Key words: *Astragalus*, Fabaceae, Iran.

Astragalus L. (Fabaceae) is probably the largest genus of flowering plants, containing up to 3000 species (Lock & Simpson, 1991). Iran is one of the biggest centers of diversity for the genus (Ghahremani-nejad, 2000), with approximately 700 species with 56% endemism (Maassoumi, 1998). The new species belongs to *A.* subg. *Cercidothrix* Bunge, which is characterized by perennial growth and the presence of bifurcate hairs (Bunge, 1868). This subgenus has nearly 800 species in the Old World, 157 (20%) of which occur in Iran. In Iran, subgenus *Cercidothrix* has 83 (53%) endemic species (Ghahremani-nejad, 2000). Major areas of species endemism for this subgenus occur in Turkey, Iran, Kazakhstan, Afghanistan, and China, with 88, 83, 47, 38, and 32 endemic species reported, respectively (Ghahremani-nejad, 2000).

Astragalus tuyehensis Ghahreman, Maassoumi & Ghahremani-nejad, sp. nov. TYPE: Iran. Semnan: 35 km N of Damghan, above Tuyeh (SW slope), 2000 m, 16 May 1978, P. Wendelbow & M. Assadi 2948a (holotype, TARI). Figure 1.

Haec species ad *Astragalum* subg. *Cercidothrix* pertinet *A. durandiano* Aitchison & Baker maxime affinis, sed ab eo calyce inflato oblongo-ovoideo (vs. cylindrico) atque fructu non tumido facile distinguitur.

Perennial, ca. 8–13 cm tall, vested with bifurcate hairs; caudex branched, short, woody. Stems 1–2 cm long, whitened by a dense coat of short appressed white hairs. Stipules partly adnate at base to petiole, free (non-connate), lanceolate-ovate, 2–3 mm long,

densely canescent with appressed white or mixed white and black hairs. Leaves imparipinnate, 1.5–3.5 cm long, both petiole and rachis densely canescent; petiole 1.5–2 cm long, 2.5–3.5 times the length of the rachis, partially persistent but not spinescent; leaflets in 2 or 3 pairs, elliptic, elliptic-oblong to rarely elliptic-obovate, acute, 5–9 × 1.5–2.5 mm, canescent on both sides. Peduncles 3–5.5 cm long, somewhat shorter than to 2 times leaf length, canescent; inflorescence ovate-spherical, 3- to 10-flowered; bracts lanceolate-ovate to lanceolate, (1)2–3 × 1–2 mm, canescent with ascending black and mixed, or exclusively white hairs; bracteoles wanting; pedicel 2 mm long. Flowers: calyx at first cylindrical, becoming oblong-ovoid inflated (to 6 mm diam.) in fruit, 12–14 mm long, finally ruptured or not ruptured by fruit, canescent with ascending white and black hairs, the calyx tube 4–5 times the length of the lanceolate teeth; corolla yellow to yellow-brown (known only from dry state). Standard 20 mm long, 10 mm broad, retuse, the limb elliptic-ovate, not auriculate, 4 to 5 times as long as the claw; wing 20 mm long, the limb oblong-elliptic, 7–8 × 3–3.5 mm, obtuse; keel 19 mm long, the limb 6 × 3.5 mm; ovary 9–10 mm long, subsessile, densely white-sericeous, imperfectly bilocular, 18-ovulate; ovules reniform, 0.25 × 0.2 mm; style 9–10 mm long, glabrous, basally pilose. Pod 9–10 mm long, terminating in a beak 1–1.5 mm long, somewhat bilocular, densely white-sericeous.

Taxonomic and distributional remarks. *Astragalus tuyehensis* has not been seen in the field by the authors, but is known to us only from four specimens, one at TARI, and three at FUMH. The species occurs in the provinces of Semnan and Khorassan (Fig. 2). The closest relative of the new species is *A. durandianus* Aitchison & Baker (*J. E. T. Aitchison 688*, type, LE!), also from subgenus *Cercidothrix*, and shares the characters of short overall height, bifurcate hairs, short stem, bracteole wanting, with stip-



Figure 1. *Astragalus tuyehensis* Ghahreman, Maassoumi & Ghahremani-nejad. Habit with details of flowers. —1. Habit. —2. Magnified view of rachis and leaflets. —3. Calyx. —4. Floral standard. —5. Wing. —6. Keel. —7. Stamens. —8. Pistil. —9. Fruit. (From the holotype: *Wendelbow & Assadi 2948a.*) (1, scale bar = 2 cm; 2, 9, scale bar = 6 mm; 3–8, scale bar = 1 cm.)

ules adnate at the base on one side of the petiole and free (non-connate) on the other side. *Astragalus durandianus*, which has a small distributional range in western Afghanistan and eastern Iran (Lock & Simpson, 1991; Rechinger, 1957: 133), is a perennial plant with bladderly-swollen fruit. The new species is readily separated from *A. durandianus* by its oblong-ovoid inflated calyx (not cylindrical) and non-swollen fruit. Both of these species are excellent candidates for section *Erioceras*, if only one character for each species is ignored (the

swollen fruit of *A. durandianus* and the swollen calyx of *A. tuyehensis*). Future molecular systematic work will be necessary to help us better understand the sectional placement of selected Old World *Astragalus*.

Paratypes. IRAN. **Khorassan:** between Mashhad and Neyshabur, Piveh-jan, 29 Apr. 1985, *H. Safavi & M. Johartchi 12341* (FUMH); Golmakan, S of Esjil, 4 May 1985, *M. Johartchi 12538* (FUMH); S of Ghuchan, Yadak, 1700 m, 15 May 1985, *M. Johartchi & Zanguee 12905* (FUMH).

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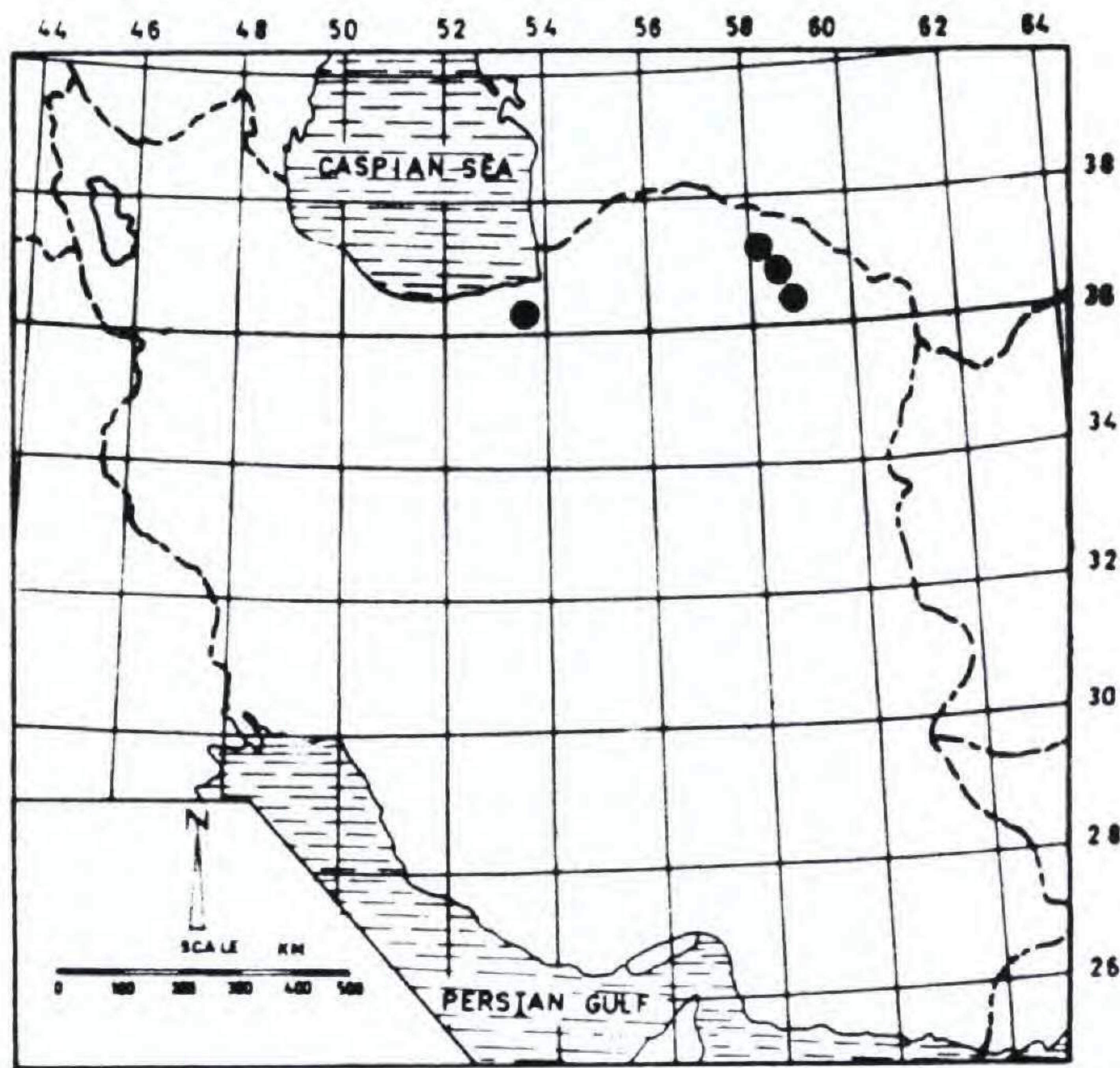


Figure 2. Distribution of *Astragalus tuyehensis*.

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